IN THE CLAIMS

Amend claims 1 and 90 as follows:

1. (Once Amended) An apparatus for controllably generating sparks at a single spark generating device, the apparatus comprising, in combination:

at least two output stages for connecting to the spark-generating device, each of the output stages including: (1) an energy storage device to store energy; (2) a controlled switch for selectively discharging the energy storage device; and (3) a network for transferring the energy discharged by the energy storage device to the spark generating device

means for charging the energy storage devices and at least partially isolating the energy storage device of each output stage from the energy storage devices of the other output stages; and,

a logic circuit connected to the controlled switches of the at least two output stages for selectively triggering the output stages to transfer their stored energy to the spark generating device to generate a spark.

2. through 73. (previously canceled)

74. (Previously Presented) The apparatus of claim 1 wherein the logic circuit triggers all of the output stages at substantially the same time.

75. (Previously Presented) The apparatus of claim 1 wherein the at least two output stages are for connecting to one of an igniter plug, a spark plug, a spacecraft thruster or a spark rod.

76. (Previously Presented) The apparatus of claim 1 wherein the energy storage device is a capacitor.

77. (Previously Presented) The apparatus of claim 1 wherein the controlled switches of the output stages comprise solid-state switches.

78. (Previously Presented) The apparatus of claim 1 wherein each of the at least two output stages further includes a triggering circuit coupled to the controlled switch and to the logic

circuit for triggering the controlled switch in response to a control signal from the logic circuit.

79. (Previously Presented) The apparatus of in claim 1 wherein at least one of the networks of the at least two output stages comprises an inductor that passes current when the controlled switch becomes conductive such that the current passes through both the inductor and the spark generating device, and a diode to ensure nominally unidirectional current flow through the spark generating device.

80. (Previously Presented) The apparatus of claim 1 wherein at least one of the networks of the at least two output stages comprises an inductor that passes current to and from the spark generating device, and a diode permitting reverse current flow during bipolar discharge.

81. (Previously Presented) The apparatus of claim 80 further comprising a low-pass filter in each network of the at least two output stages to prevent untriggered ones of the at least two output stages from being false triggered by the discharging of any of the other output stages.

82. (Previously Presented) The apparatus of claim 1 wherein each of the networks of the at least two output stages includes a diode to at least partially isolate each of the at least two output stages from the other output stages.

83. (Previously Presented) The apparatus of claim 1 wherein the isolating circuit comprises at least two isolating diodes, each of the isolating diodes being associated with one of the at least two output stages.

84. (Previously Presented) The apparatus of claim 1 wherein the means comprises at least one controlled switch for selectively connecting the output stages to a source of energy.

85. (Previously Presented) The apparatus of claim 84 wherein the means further comprises a flyback converter for selectively providing energy to the output stages.

86. (Previously Presented) The apparatus of claim 85 wherein the flyback converter includes at least one input for switching the converter between charge and stop states for controlling the charging of the energy storage devices.

87. (Previously Presented) The apparatus of claim 84 wherein the means disconnects the output stages from the energy source at least while the energy storage devices are discharging.

88. (Previously Presented) The apparatus of claim 1 wherein the means comprises at least two charging circuits, each of the charging circuits associated with one of the at least two output stages for charging the energy storage devices independently of one another.

89. (Previously Presented) The apparatus of claim 1 wherein the networks are coupled to a common output connected to the spark generating device, and a feedback circuit is coupled to the logic circuit and to the common output to enable the logic circuit to monitor the energy being transferred to the spark generating device.

90. (Once Amended) An apparatus for controllably generating sparks at a single spark generating device, the apparatus comprising:

at least first and second capacitors to store and selectively discharge energy;

first and second controlled switches connected to the first and second capacitors, respectively, to discharge the energy stored in the first and second capacitors to an input of the spark-generating device in response to control signals;

a circuit for charging the capacitors and for at least partially isolating each capacitor from the other capacitors such that any one of the capacitors can be discharged without discharging the others; and,

a logic circuit for providing the control signals to the controlled switches to discharge the capacitors to the input of the spark-generating device, wherein the logic circuit triggers the controlled switch to shape the plume of the spark generated by the spark generating device.

91. (Previously Presented) The apparatus of claim 90 wherein the circuit for charging and isolating comprises charging circuits associated with the capacitors, each of the charging circuits configured to charge and allow discharging of one of the capacitors independently of other capacitors.

92. (Previously Presented) The apparatus of claim 90 wherein the circuit for charging and isolating comprises a diode associated with each of the capacitors and a charging circuit for charging each of the capacitors via one of the diodes.

93. (Previously Presented) The apparatus of claim 92 wherein the charging circuit comprises at least one converter.

94. (Previously Presented) The apparatus of claim 90 wherein the controlled switches are solid-state devices.

95. (Previously Presented) The apparatus of claim 90 wherein the capacitors have different capacitances.

96. (Previously Presented) The apparatus of claim 90 wherein the logic circuit comprises a microprocessor.

97. (Previously Presented) An apparatus for controllably generating sparks at a spark generating device, the apparatus comprising, in combination;

one or more converters;

an output stage connected to each of the converters and to the spark generating device, the output stage including: (1) an energy storage device to store the energy received from the converter; (2) a controlled switch for discharging the energy storage device; and (3) a network for transferring the energy discharged by the energy storage device to the spark-generating device; and

one or more logic circuits with at least one of the logic circuits connected to the controlled switch of each output stage for triggering the output stage to transfer its stored energy to the spark-generating device to generate the spark;

wherein the controlled switches are triggered substantially at the same time and the energy output from one of the output stages substantially overlaps the energy output from another output stage, thereby causing the energy at the spark-generating device to be a sum of the energy outputs from more than one output stages.

98. (Previously Presented) The apparatus of claim 97 with additional output stages connected to the spark generating device that also are triggered substantially at the same time with the more than one output stages, thereby causing the energy at the spark-generating device to be a sum of the energy outputs from the more than one and the additional output stages.

99. (Previously Presented) An apparatus for controllably generating sparks at a spark generating device, the apparatus comprising, in combination:

at least two output stages connected to a spark generating device, each of the output stages including: (1) an energy storage device to store energy; (2) a controlled switch for selectively discharging the energy storage device; and (3) a network for transferring the energy discharged by the energy storage device to the spark-generating device;

means for charging the energy storage devices;

means for at least partially isolating the energy storage device of each output stage from the energy storage devices of the other output stages; and,

a logic circuit connected to the controlled switches of the at least two output stages for selectively triggering the output stages to transfer their stored energy to the spark-generating device to generate a spark, wherein the logic circuit triggers the controlled switches in all of the output stages to transfer the energy stored in the output stages to the spark-generating device; the logic circuit triggering the controlled switches of the at least two output stages at substantially the same time to sum the energy from the at least two output stages transferred to the spark-generating device.

100. (Previously Presented) The apparatus of claim 99 wherein the means comprises at least two charging circuits, each of the charging circuits associated with one of the at least two output stages for charging the energy storage devices independently of one another.

This listing of claims replaces all prior versions, and listings, of claims in this application.